

What is claimed is:

1. A method for determining a moving status of a portable telephone, comprising the steps of:

a) receiving a call setup signal for an incoming call from a base station using a designated radio channel;  
b) measuring a reception signal strength on a sequentially selected one of N radio channels that are previously designated by the base station at a timing other than a communication timing of the designated radio channel, where N is an integer greater than 1; and

10 c) determining a moving status of the portable telephone based on measured reception signal strengths.

2. The method according to claim 1, wherein the step (c) comprises the steps of:

c.1) repeating the step (b) for the N radio channels 15 M times, where M is an integer greater than 1;  
c.2) calculating a variation in reception signal strength between a previously measured reception signal strength and a currently measured reception signal strength for a sequentially selected one of the N radio channels; and  
20 c.3) determining a moving status of the portable telephone based on accumulated variation over M sets of N reception signal strengths.

3. The method according to claim 2, wherein the step  
5 (c.3) comprises the steps of:

when the accumulated variation is smaller than a  
predetermined threshold, determining that the portable telephone  
5 is not moving at high speeds; and

*SAC*  
*AR*

when the accumulated variation is not smaller than  
a predetermined threshold, determining that the portable  
telephone is moving at high speeds.

4. The method according to claim 1, wherein the step

10 (c) comprises the steps of:

c.1) repeating the step (b) for the N radio channels  
M times, where M is an integer greater than 1;

c.2) selecting at least one radio channel from the  
N radio channels, said at least one radio channel having a  
reception signal strength greater than a minimum permissible  
15 level;

c.3) calculating a variation in reception signal  
strength between a previously measured reception signal strength  
and a currently measured reception signal strength for said at  
20 least one radio channel;

c.4) calculating an average variation by dividing  
accumulated variation by M; and

c.5) determining a moving status of the portable  
telephone based on the average variation.

5. The method according to claim 4, wherein the step  
(c.5) comprises the steps of:

when the average variation is smaller than a  
predetermined threshold, determining that the portable telephone  
5 is not moving at high speeds; and

*SCW A1*  
when the average variation is not smaller than a  
predetermined threshold, determining that the portable telephone  
is moving at high speeds.

6. The method according to claim 1, wherein the  
10 portable telephone communicates with the base station in TDMA  
(time division multiple access) scheme, wherein a next timing  
for transmission and reception is relatively determined by a  
current timing for transmission and reception.

7. The method according to claim 6, wherein the step  
15 (b) comprises the steps of:

b.1) switching a communication channel from the  
designated radio channel to a sequentially selected radio channel  
of the N radio channels at an idle timing between adjacent timings  
for transmission and reception of the designated radio channel;

20 b.2) measuring a reception signal strength on the  
sequentially selected radio channel; and

b.3) switching a communication channel from the sequentially selected radio channel back to the designated radio channel after a lapse of the idle time.

8. A portable telephone comprising:  
5 a transceiver for receiving and transmitting radio signals from and to a base station using a radio channel designated by the base station;  
10 a reception level measuring circuit for measuring a reception signal intensity on a currently selected radio channel; and  
15 a moving status detector for detecting a moving status of the portable telephone based on measured reception signal strengths, each of which is measured on a sequentially selected one of N neighboring radio channels that are previously designated by the base station at a timing other than a communication timing of the designated radio channel in response to receipt of a call setup signal for an incoming call from the base station using the designated radio channel.

9. The portable telephone according to claim 8,  
20 wherein the moving status detector repeats measurement of reception signal strengths for the N radio channels M times, calculates a variation in reception signal strength between a previously measured reception signal strength and a currently measured reception signal strength for a sequentially selected

SEARCHED INDEXED  
SERIALIZED FILED  
JULY 19 1993  
U.S. PATENT AND TRADEMARK OFFICE

SEARCHED  
A1

one of the N radio channels, and detects a moving status of the portable telephone based on accumulated variation over M sets of N reception signal strengths.

10. The portable telephone according to claim 9,  
5 wherein when the accumulated variation is smaller than a predetermined threshold, the moving status detector determines that the portable telephone is not moving at high speeds and, when the accumulated variation is not smaller than a predetermined threshold, the moving status detector determines that the  
10 portable telephone is moving at high speeds.

*Scrub Av*

11. The portable telephone according to claim 8,  
wherein the moving status detector repeats measurement of reception signal strengths for the N radio channels M times, selects at least one radio channel from the N radio channels,  
15 said at least one radio channel having a reception signal strength greater than a minimum permissible level, calculates a variation in reception signal strength between a previously measured reception signal strength and a currently measured reception signal strength for said at least one radio channel, calculates an average variation by dividing accumulated variation by M, and  
20 determines a moving status of the portable telephone based on the average variation.

12. The portable telephone according to claim 11,  
wherein when the average variation is smaller than a predetermined  
threshold, the moving status detector determines that the  
portable telephone is not moving at high speeds and, when the  
5 average variation is not smaller than a predetermined threshold,  
the moving status detector determines that the portable telephone  
is moving at high speeds.

13. The portable telephone according to claim 8,

10 further comprising:

a controller controlling the transceiver so that  
the portable telephone communicates with the base station in TDMA  
(time division multiple access) scheme, wherein a next timing  
for transmission and reception is relatively determined by a  
15 current timing for transmission and reception.

14. The portable telephone according to claim 13,

wherein the controller switches a communication channel from the  
designated radio channel to a sequentially selected radio channel  
of the N radio channels at an idle timing between adjacent timings  
20 for transmission and reception of the designated radio channel  
and, after a lapse of the idle time used to measure a reception  
signal strength on the sequentially selected radio channel, and  
switches a communication channel from the sequentially selected  
radio channel back to the designated radio channel.

15. The portable telephone according to claim 10,  
further comprising:

a display circuit for displaying necessary  
information on screen;

5 an alert circuit for alerting a user to occurrence  
of an incoming call;

a controller controlling the display circuit and  
the alert circuit such that

when the moving status detector determines that the  
10 portable telephone is not moving at high speeds, both the display  
circuit and the alert circuit are activated, and

when the moving status detector determines that the  
portable telephone is moving at high speeds, the alert circuit  
is not activated but the display.

15 16. The portable telephone according to claim 12,  
further comprising:

a display circuit for displaying necessary  
information on screen;

an alert circuit for alerting a user to occurrence  
20 of an incoming call;

a controller controlling the display circuit and  
the alert circuit such that

when the moving status detector determines that the  
portable telephone is not moving at high speeds, both the display  
25 circuit and the alert circuit are activated, and

SUB  
A1

*SUB A1*

when the moving status detector determines that the portable telephone is moving at high speeds, the alert circuit is not activated but the display.

*ADD D1*